IMPORTANT PRODUCT INFORMATION

READ THIS INFORMATION FIRST

Product: **Plug & Play PC™ Coprocessor–R elease 2**

IC697VPC462B	486DX2-66 / 8MB DRAM
IC697VPC463B	486DX2-66 / 16MB DRAM
IC697VPC464B	486DX2-66 / 32MB DRAM
IC697PNP101B	VPC462B plus PNP111B kit
IC697PNP701B	Formatted 131MB Hard disk
IC697PNP111B	Kit containing loaded hard disk, cables, manuals, and CD-ROM documentation
44A736765-001R02	Loaded hard disk only–no cables, manuals, or documentation (for warranty replacement only).

1.	**Demo programs**	Note that the Plug & Play PC demo programs provided for the 90-70 CPU are not intended for use in a real application. Do not attempt use of the demo programs on operating machinery.
2.	**Backing up your Hard Disk** DO THIS NOW!!!	It is ***very stronglyrecommended*** that you back up your loaded hard disk immediately upon receiving it. The following procedure can be used, or you can use the procedure shown in the user manual. 1. Get the Plug & Play PC up and running as described in the user manual. 2. Plug your backup hard disk (IC697PNP701) into socket A. 3. Click on the "Complete HD Backup" icon in the Plug & Play program group. 4. Follow the instructions provided on the screen. 5. For subsequent backups, the icon labelled "New Files to Backup HD" can be used to save only the recent files to the disk used as above.
3.	**When installing the VPC**	The revision B VPC hardware includes a plastic screw retainer on the back of the rack mounting screws. The purpose of these retainers is to prevent the screws from coming out of the VPC during shipment. Be sure to remove these screw retainers prior to installing the VPC in the 90-70 rack.

4.	**The first time you go into Microsoft® Windows™.**	Revision B units are shipped with the UMBDDE driver default settings in the embedded setup areas. When you first power up Windows, enter the SetVPC program from the Plug & Play program group, and select the driver that you plan to use. Also note: you cannot use the VMEDDE driver unless your 90-70 CPU has release 5.5 installed.
5.	**Visual Basic demo does *not* need UMBDDE**	The user manual incorrectly states that the Visual Basic demo requires the UMBDDE driver for correct operation. Actually, the Visual Basic demo reads and writes directly to shared RAM, and bypasses the UMBDDE driver. The UMBDDE driver does not need to be operating for the Visual Basic demo to work. The 90-70 CPU program UMBDEMO *does* need to be operating, however.
6.	**Driver Check program**	There is an additional program icon in the Plug & Play program group called "Driver Check". If executed, this program will test for the presence of both the VMEDDE and UMBDDE drivers. This program works only with topics "UMBDDE|UMB" and "GEHCS|VME" which are the default driver names.
7.	**Package Contents: PNP101B**	1 – IC697VPC462B 1 – IC697PNP111B
8.	**Package Contents: PNP111B**	1 – Loaded hard disk (see contents below) 1 – VPC Port 2 to 90-70 serial RS485 cable (5 feet long) 1 – Parallel InterLink cable (*Not* a printer cable) 1 – MSDOS Manual and backup diskettes 1 – Windows Manual and backup diskettes 1 – Phoenix PCMCIA manual 1 – GE Fanuc license agreement for Logicmaster 90 and Host Communication Toolkit Drivers (GFJ–317B) 1 – GE Fanuc registration card (GFJ–0404) 1 – IPI document for the Plug & Play system (GFK–1058) 1 – CD ROM with GE Fanuc documentation 1 – IPI document for Logicmaster 90 1 – Plug & Play User's manual (GFK-1055)
9.	**Package Contents: PNP701B**	1 – Formatted hard disk 1 – manufacturer's hard disk data sheet
10.	**Package Contents: VPC**	1 – BNC F "Ethernet" connector. 1 – Keyboard adaptor cable for AT to PS2 conversion. 1– VPC data sheet 1 – Backup battery MSDS (manufacturer's safety data) sheet

11. Where the software and documents are located.	Note: **PLC Hotline** is at 1-800-828-5747, (or 804-978-5747) Internet address is PLCHOTLINE@CHO.GE.COM Fax number is 804-978-5099. (Microsoft and Phoenix technical support numbers can be found in the respective manuals.)			
Items	Revision Level	On rev B hard disk?	Where to go for tech support	Documentation source
MS-DOS	6.22	Yes	Microsoft (phone number from manuals)	PNP package
MS Windows for Workgroups	3.11	Yes	Microsoft (phone number from manuals)	PNP package
Logicmaster 90 Serial	5.01	Yes	PLC Hotline	CD-ROM with PNP package
GE Fanuc Host Communication drivers for VME andTCP/IP	1.07 1.04 TCPIP 1.04 VME	Yes	PLC Hotline	GFK-0870 (separate purchase required). Some information is included in the Plug & Play PC User's Manual (GFK-1055).
SetVPC	1.04	Yes	PLC Hotline	User manual (GFK-1055)
UMBDDE (Fast Memory Driver)	1.01	Yes	PLC Hotline	User manual (GFK-1055)
Phoenix PCMCIA services	2.22	Yes	Phoenix (phone number from manuals)	Phoenix manual included with PNP package
VME Bios	1.02	In VPC	PLC Hotline	User manual (GFK-1055)
VPC system BIOS	1.03	In VPC	PLC hotline	User manual (GFK-1055)

Tech support for the items below is obtained from the CIMPLICITY Hotline at 800-762-6498. The internet address is HOTLINE@ALB001.DNET.GE.COM. The fax number is 518-464-4613.

Note 1–Obtained when software/key is purchased from CIMPLICITY distributor.

CIMPLICITY InTouch Item	Revision level	Loaded on Rev B hard disk	Key required for demo mode	Key required for normal operation	Documentation source
GE Fanuc CIMPLICITY InTouch 5.0	5.0	Yes	No	Yes	Note 1, also GFA-137
GE Fanuc Series 90 Fault Table Client	1.02	Yes	Yes	Yes	Note 1
CIMPLICITY InTouch GEHCS DDE Server	5.0	Yes	Yes	Yes	Note 1
GE Fanuc Symbol Library	2.0	Yes	No	Yes	Note 1
GE Fanuc SNP DDE driver	4.05	Yes	Yes	Yes	Note 1, also GFT-130
GE Fanuc CCM DDE driver	4.0	Yes	Yes	Yes	Note 1, also GFT-128
SQL	N/A	No	N/A	Yes	Note 1, also GFT-121
SPC	N/A	No	N/A	Yes	Note 1, also GFT-119
Recipes	N/A	No	N/A	Yes	Note 1, also GFT-120

12. **Memory sizes cannot be changed**	Due to the difficulty of VPC disassembly and reassembly, an 8MB VPC462 cannot be upgraded to a 16MB or 32MB VPC463 or VPC464 in the field. Nor can a VPC463 be upgraded to a VPC464. GE Fanuc does not have a factory upgrade plan at this time, and customer memory upgrades are not recommended or supported.
13. **Use of other hard disks or PCMCIA devices.**	The Plug & Play PC has been fully tested with the hard disks which GE Fanuc supplies. Other hard disks, or other PCMCIA devices may not work properly, and are not guaranteed to work by GE Fanuc. It should be noted that the PCMCIA disk drivers supplied with the Plug & Play PC Rev. B do not support drives larger than 131MB.
14. **Out of Memory message**	If you are already running some Windows applications, and you try to run Logicmaster 90, when you try to load the programming package or the configuration package you may get a Logicmaster 90 message indicating that there is not enough memory to load the program. If this occurs, try loading Logicmaster 90 prior to invoking the Windows programs. If you get an out of memory error message when running multiple Windows applications simultaneously, it may be possible to reconfigure the Plug & Play PC to allow these programs to run at the same time. You can try reducing the cache size in the Windows Control Panel as described above. You can also modify the SMARTDRV line in the AUTOEXEC.BAT file– reduce the second parameter from 1024 to 512. Both of these changes may result in performance degradation of Windows programs, and DOS programs running under Windows, but they may allow more programs to be run at the same time under Windows.
15. **Hard disk space**	As shipped, revision A hard disks had about 22MB of space remaining, and revision B loaded hard disks have approximately 47 MB of space remaining. In the event that additional space is needed, the following steps can be used: 1. Reduce the swapfile setting to a lower number, or 0. This may have a negative effect on performance in some cases, but may not be noticeable in many other cases. 2. Delete the files in the C:\WINDIST directory that are no longer needed. This can provide about 20MB of additional space depending on how many files are erased. After Windows is up and running successfully with all printers, networks, etc. successfully installed, the files in this directory may no longer be needed. 3. Purchase the IC697PNP701 hard disk, and use it in Socket A as an extra drive. 4. Use Ethernet to access additional files from a remote server. 5. CIMPLICITY InTouch creates backup files of the form *.?bk. After development of a project is complete, these files may be deleted.

16. **Logicmaster 90 Memory Requirements**	To provide optimal performance, Logicmaster 90 requires space to load a communication driver in either conventional memory, or in high memory. The existing suite of revision B configuration files allows Logicmaster 90 to operate in this optimal mode. If the configuration files listed below are changed, Logicmaster 90 performance may degrade, or Logicmaster 90 may not operate at all. Care should be taken when installing additional software to the Plug & Play PC which may change the configuration files.
	To run at all, Logicmaster 90 release 5.01 requires 590K of conventional memory, OR 545K of conventional memory plus 49K of High Memory Area, Upper Memory Blocks, or expanded memory.
	The revision B unit has been configured for the Logicmaster 90 COMM driver to load into DOS memory, and to run with NO expanded memory, and with optional Extended memory.
17. **New Demos**	Revision A units were shipped with a Visual Basic demo, and a CIMPLICITY InTouch demo. The CIMPLICITY InTouch demo used the UMBDDE driver to obtain information from the 90-70 CPU. Both drivers needed to run the companion demo program (UMBDEMO) at the same time.
	Revision B units add another CIMPLICITY InTouch demo which uses the VMEDDE driver. This demo is also located in the Plug & Play program group. The 90-70 companion CPU program for this demo is VMEDEMO.
	To use this demo, you must purchase a CIMPLICITY InTouch package, and use the supplied hardware key. Refer to the CIMPLICITY InTouch documentation for details.
18. **When installing new software** **CAUTION**	The Plug & Play PC is a "bundled" product, and has been optimized for use with the included software on the included hardware. To a large extent, this optimization involves configuration of the DOS and Windows operating characteristics, which are found in the CONFIG.SYS and AUTOEXEC.BAT files, and the WIN.INI and SYSTEM.INI files.
	Changes to these files should *not* be made unless you have an expert grasp of the possible consequences.
	When you install new software, sometimes this software automatically makes changes to some of the above files, with inadvertent side effects on the operation or performance of programs which were already running successfully.
	If CIMPLICITY InTouch, or Logicmaster 90 stops operating properly, or performance is severely hampered after installing some unrelated program, you may need to remove the offending programs, and use the original system files. The original system files are included in the loaded hard disk C:\BACKUP directory. It is recommended that before installing new software, that you copy the above files which represent the last known "good" configuration to the C:\BACKUP directory as a precaution.
	When additional programs have been installed which affect the configuration files, it is possible that Logicmaster 90 will continue to operate when invoked directly from DOS, instead of from Windows via the MS-DOS prompt, or from the Windows Icon.

19. 90-70 Power Supply	It is *required* that the **GE Fanuc 100 Watt power supply** be used to power the rack containing the Plug & Play PCs. This power supply provides +12 and –12 Volts, which is required by the Plug & Play PC, in addition to the extra +5V power typically needed for the Plug & Play PCs. If use of the 55 watt supply is attempted, the Plug & Play PC will probably lock up in the boot up screen.
20. Only two VPCs per rack	Early versions of the user documentation specify that a maximum of three Plug & Play PCs can be used in a single 90-70 rack, depending on loading of other modules, etc. This is a mistake. The actual maximum number should be limited to *two* **VPCs per 90-70 rack**. Additional units in the same rack have not been fully tested by GE Fanuc, and power consumption of additional modules in the same rack makes a configuration with more than two VPCs unworkable. In addition, GE Fanuc has not fully tested more than two units per system, and operation with more units is not guaranteed at this time.
21. Location of the VPC in a 90-70 rack	When using the VMEDDE driver, there must not be any empty slots between the 90-70 CPU and the VPC. Other restrictions as outlined in the user manual must also be followed. The UMBDDE driver often works even if these restrictions are not adhered to.
22. Video Monitors	Be careful when changing video monitors with the Plug & Play PC. If the system has been changed to a higher resolution (from the default 640x480) to work with a high resolution monitor, and then the monitor is replaced with a lower resolution monitor, it will not be possible to view the power up screen or any other screens. You need to reconnect the higher resolution display, then set the video driver to 640x480 resolution prior to connecting the low resolution display. This is a characteristic of most PCs, but is more likely to happen with the Plug & Play PC due to its use on the factory floor.

23. Logicmaster 90 Configuration of the VPC card	In the Logicmaster 90 configuration package, when you configure the 90-70 I/Ostructure, identify the VPC as "Foreign VME Module". Then: 1. Highlight the rack/slot where the VPC is located. 2. Select vme (**F7**). 3. Select vme (**F1**). 4. Highlight "3RD PTY VME' and press **ENTER**. 5. Press the **TAB** button until "FULL MAIL" shows on the screen and then press **ENTER**. 6. Press the **down arrow** button to highlight the Address. 7. Type in the correct value based on the following formulas, then press **ENTER**. 8. Press **ESC**. You can now continue with your configuration setup. The formula for rack 0 is: $10000h * [2 * (slot - 2)]h$ (*h* denotes hexadecimal) The formula for racks 1 through 7 is: $10000h * \{[(0Fh - rack) * 10h] + [2 * (slot - 2)]\}h$ A chart containing the calculated values is provided in the Plug and Play PC User's Manual.
24. How to power down correctly.	The Plug & Play PC is, in fact, an AT compatible PC with a VME interface. As with any PC, there are restrictions which apply when powering down the PC. If at all possible, when powering down your Plug & Play PC, be sure that all Windows and DOS applications have been closed, and that you have exited Windows. Otherwise, some information may not be written properly to hard disk, and *unrecoverable* disk errors may occur. Also, do not power down while the "power up memory test" is being performed. See the note in the next section. It is *very* **STRONGLY recommended** that regular **backups** of the hard disk be performed to the formatted hard disk IC697PNP701, or via InterLink to another computer. See the procedure which appears earlier in this document. **Note that a true hard disk backup results in a bootable disk, whereas the InterLink method does not.** Some critical applications cannot allow loss of data between hard disk backups. In other critical applications, it may not be practical to back up the hard disk. In some other applications, it may not be possible to exit Windows properly prior to a power shut down. For these applications, it is recommended that the 90-70 system which includes the Plug & Play PC be powered off an **uninterruptable power supply (UPS).**

25. **Recovery from the "StartingMS-DOS....." hangup problem.**	Do not power down, or hit **Control Alt Delete** while the "power up memory test" is being performed. On rare occasions, this may scramble the CMOS setup memory, and the unit will not power up correctly on the next power cycle. A common symptom of this is that the system hangs up with the message "Starting MS-DOS.....".
	If your system hangs up with the above message, do the following to recover:
	1. Power down the system, and power it up again.
	2. As the system is doing it's memory test, hit **F2**, then enter the AT Setup menu.
	3. Enter the extended BIOS setup screen.
	4. Change the QUICK BOOT selection to **NO**.
	5. Save the change, and **ESC** out of the setup program.
	6. The system will reboot, and perform a complete diagnostic, which should clear the problem. This may take much longer than a normal boot up.
	7. After the system has successfully booted up again, power cycle the system.
	8. When the system is powering up, hit **F2**, and again enter the AT SETUP, and extended BIOS setup screens.
	9. Reset the QUICK BOOT selection to **YES**.
	10. Save this selection, and **ESC** back out of the setup program.
	11. On the next reboot, your system should be back to normal.
26. **Hard Disk Backups**	It can be very difficult, and is sometimes impossible to recover data on a hard disk which has "crashed". Hard disk crashes can be caused by improper power down procedures, as described above, and can also be caused by malfunctioning software.
	Note that it is *not* possible to boot from a floppy disk with the Plug & Play PC since there is no floppy disk.
	It is *verySTRONGLYrecommended* that regular backups of the hard disk be performed to the formatted hard disk IC697PNP701, or via InterLink to another computer. ***Note that a true hard disk backup results in a bootable disk, whereas the InterLink method does not.*** The DOS SCANDISK function can sometimes be used to recover from errors, but most hard disk errors are unrecoverable.
	It is recommended that the customer purchase IC697PNP701, and use the procedure shown earlier in this document on a routine basis to make a complete bootable copy of the original hard disk.

27. **UMBDDE operation with 32 bit words.** Compatibility between the UMBDDE driver and VME driver.	The UMBDDE driver shipped with the revision A hard disks does not support 32 bit words (CIMPLICITY InTouch "DDE Real" data type. The only data types which are supported in the revision A UMBDDE driver are AI, AQ (integers), I and Q (bits). The revision B UMBDDE driver supports the above types, plus an "R" data type which can also be used with signed 16 bit data, BCD, bit, 32 bit long, 32 bit float, and ASCII. This R type provides compatibility with the VME server, in the event that you develop a CIMPLICITY InTouch program with the UMBDDE driver, and then transition to the VME driver in the future. With no modifications to the 90-70 CPU UMBdemo program, reads to R references will come from corresponding AI references, and writes to R references will be directed to corresponding AQ references. In order to actually read and write R references in the 90-70 CPU, it is necessary to modify the demo program VME read and write instructions to access registers instead of AI, AQ.
28. **UMBDDE Driver information.**	The information at the end of this document (see page 17) is extracted from the UMBDDE driver on-line help. Because it is not in the current version of the user's manual, it is reproduced here for your convenience. This information may be useful to those writing DDE capable applications (e.g. Visual Basic, Visual C++, Excel, Word, etc.) which need to use the UMBDDE driver to obtain information from the 90-70 PLC. In addition, be aware that the BCD read and write function will produce unpredictable results if non valid BCD data is read from the 90-70 CPU via the driver, or if you attempt to send non valid BCD information to the 90-70 CPU via the driver. It should also be noted that DDE related errors, such as Visual Basic error 285, can sometimes be "tuned out" by using different UMBDDE operational parameters. Also note that the UMBDEMO 90-70 or a similar program needs to be running to actually transfer the data between the server and the CPU. During testing using some Visual Basic programs, it was determined that the setting of the UMBDDE protocol parameters had a significant effect on the number of DDE related timeout errors. The default settings of 100mS Protocol Timer Tick, and 1000 mS Internal DDE Timer Tick sometimes result in DDE timeouts. If this occurs in your application, try lowering the DDE Timer Tick value to a lower number (e.g. 900). Also, overall DDE performance can be enhanced by lowering the Protocol Timer Tick value, but at the expense of other programs which are operating.

29. **To Run CIMPLICITY InTouch**	The Plug & Play PC loaded hard disk includes features as outlined on page 3 of this document.
	To fully enable the non-demo features of CIMPLICITY InTouch, you must purchase CIMPLICITY InTouch and options from an authorized distributor. You will then obtain:
	• The hardware key mentioned above (depending on what you purchase, the hardware key enables different functions in the software already loaded).
	• CIMPLICITY InTouch Diskettes (this software is already installed in the Plug & Play PC, and does not need to be installed again, unless this is an upgrade, or an option not already included).
	• CIMPLICITY InTouch Documentation.
	• CIMPLICITY InTouch Demo Documentation.
	• GE Fanuc Series 90 Fault Tables–documents and backup diskettes.
	• CIMPLICITY InTouch Symbol Library–documents and backup diskettes.
	If you are purchasing options which were not included in the Plug & Play PC loaded hard disk already, such as SQL (Structured Query Language), SPC (Statistical Process Control), or Recipes, you must purchase the software and documentation from an authorized distributor. The software must then be installed by the Plug & Play PC user.
	These options are installed using InterLink. Refer to the InterLink section in this document or the Plug & Play user manual, appropriate CIMPLICITY InTouch documentation, or call the CIMPLICITY Technical Support Hotline.
30. **CIMPLICITY InTouch VME Port definition**	The GE Fanuc Host Communication VME driver reads the C:\WINDOWS\GEF_CFG.INI file to determine some of its configuration parameters. There are two sections related to use with the Plug & Play PC. These must appear as listed below for the demos to work properly:
	[VMEPLC]
	DEST_ADDR = 10E00000
	[VME]
	TYPE = VME_PORT
	CIMPLICITY InTouch always uses the above parameters.
31. **CIMPLICITY InTouch Demo for UMBDDE**	The CIMPLICITY InTouch demo program which uses the UMBDDE driver needs to be invoked after the SetVPC program has selected the UMBDDE driver. Although there is a control button after you enter the demo to start up the UMBDDE, other settings also need to be made which cannot be changed from within the demo program.
	The proper sequence is:
	• Use SetVPC to select the UMBDDE driver (UMBDDE) if not already selected.
	• Start up the UMBDDE driver from the Plug & Play program group.
	• Start up the CIMPLICITY InTouch demo program.

32. **Moving the GEHCS icon to the startup group**	The GEHCS CIMPLICITY InTouch server program calls the SRX driver to attach to the 90-70 CPU for communications. If CIMPLICITY InTouch is started up prior to the GEHCS program being started, it will offer the option of starting GEHCS, which will then attempt to start SRX automatically. With the present versions of GEHCS, SRX, and CIMPLICITY InTouch, the GEHCS program takes longer to start up than a built–in timeout period in InTouch. The net result is that you are presented with a second opportunity to start GEHCS even though it is actually running. At this point you should hit the **CANCEL** button.
	To avoid this problem altogether, you can start the GEHCS program prior to starting CIMPLICITY InTouch. This can be done manually or, in a production environment, it can be done by putting GEHCS in the Windows startup program group.
33. **Moving the GEHCS icon to the startup group**	If you activate the SRX driver, and click on the VERSION menu item, the version number "VME 1.04" will be shown. This is incorrect. The version of VME driver which is actually shipping (file VME.386, dated 12/9/94) is VME 1.05. This is a display problem only and does not affect operation.
34. **VMEDDE Driver may get out of sync**	To operate properly, the VMEDDE driver needs to have the DEVICE=C:\WINDOWS\VME.386 line present (not remarked out) in the system.ini file. In addition, the embedded AT settings in the VPC itself must be set for correct VMEDDE operation (as described on page 8 of this document). The SetVPC program sets these parameters in tandem when the VMEDDE or UMBDDE drivers are selected. The SetVPC program also reads the system.ini file to determine which driver has already been loaded.
	If the system.ini file is MANUALLY edited (NOT using SetVPC) to add or remove the line above, then the SetVPC program may become confused, and will not allow the VMEDDE driver embedded settings to be set up because it thinks the VMEDDE driver is already loaded. To recover from this situation, use SetVPC to select the UMBDDE driver, reboot, then reselect the VMEDDE driver.
	The Plug & Play PC is shipped correctly configured, but this condition may occur if another program, such as a future release of the Wonderware GEHCS DDE server volunteers to "set up the VME driver", and you answer "yes".
35. **Other GEHCS installation comments**	The Plug & Play PC is shipped with the GEHCS VMEDDE server. If this program is also obtained from another source, and is re-installed on top of the existing version, note the following:
	If you are notified that some files on the distribution disk are older than the existing copy, "Retain Newer Copy"–answer **NO**.

36. **Running the Excel Demos**	There is an Excel® demo program in the PNPUTILS directory for use with the UMBDDE driver. There are also some Excel demo programs in the InTouch directory. If you want to run these demos and do not have Excel installed on the Plug & Play PC, but you have it installed on another PC, you can use the following procedure. This procedure covers the use of the demo program for the UMBDDE driver.
	1. Append the path statement in your autoexec.bat file on the Plug & Play PC to include F:\WINDOWS\SYSTEM. Restart your Plug & Play PC.
	2. Connect the InterLink cable, and start INTERSVR on the remote computer which has Excel installed.
	3. Start the UMBDDE driver from the Plug & Play program group.
	4. Be sure the 90-70 CPU program UMBDEMO is running.
	5. From the Windows program manager in the Plug & Play PC, RUN F:\EXCEL\EXCEL C:\PNPUTILS\UMBDEMO.XLS. You should be able to see the data changing in both tabular and graph form.
	6. If you load the other Excel demo programs, you may need to EDIT LINKS and change the names of the DDE Topic names to be the same as are used in the UMBDDE driver (Server name= UMBDDE, Topic name = "UMB", item name (example) = "AQ5").
	Note: You will need to eventually remove the F:\WINDOWS\SYSTEM reference from your path command, or your system will hang up when you remove the InterLink cable, or stop running INTERSVR on the remote computer.
37. **Enhanced mode**	Windows for Workgroups 3.11 must be run in enhanced mode on the Plug & Play PC. This is the default mode when shipped from the factory.
38. **Use only Microsoft Mouse**	**Use *only* a Microsoft Mouse**–Use of a mouse other than a Microsoft mouse with the mouse drivers supplied by Windows will result in erratic and unpredictable **lockups** in the Plug & Play PC. This is a bug which has been documented by Microsoft.
39. **Using SNP with the Plug & Play PC**	A future release of the Plug & Play PC will include a Host Communication SNP Driver for the serial ports.

40. Using Ethernet with the Plug & Play PC	The Plug & Play PC is an AT compatible computer, and a multitude of Ethernet drivers are available in the marketplace for an AT platform. In addition, some Ethernet network drivers are included with the Plug & Play PC as part of Windows for Workgroups 3.11: • NDIS (NE2000 compatible)–with WfW 3.11 • NOVELL–With WfW 3.11 • LAN MANAGER–with WfW 3.11 • TCP/IP (on the Microsoft and GE Fanuc bulletin boards as "Shareware"). • Beame and Whiteside TCP/IP (commercially available). None of these network drivers has been thoroughly tested by GE Fanuc, but might be made to work successfully. GE Fanuc does not guarantee operation of these drivers. GE Fanuc has released a TCP/IP driver as part of the Host Communications Toolkit, and Driver packages. Other: Please note that the port is thinwire only. (Low cost adapters from thin wire to thick wire and 10BaseT, twisted pair are available). A BNC "F" connector is included with the VPC. The Ethernet port talks only to the Plug & Play PC. ***Do not expect a direct connect to the PLC using available SRTP. This is not a replacement for the Series 90-70 Ethernet module***. An application installed in the VPC may act as a data concentrator for a remote host. Call GE Fanuc technical support, or refer to the GE Fanuc Bulletin Board for new information.
41. Before installing TCP/IP	The SRX/VME and SRX/TCPIP drivers read a file C:\WINDOWS\GEF_CFG.INI which contain some lookup tables relating logical names to real world addresses. These logical names are used by CIMPLICITY InTouch, or any other application that rides on top of SRX. As shipped with the Rev. B Plug & Play PC, this file contains the correct default values for the CIMPLICITY InTouch demos, and other demos packaged with the Rev. B PNP to work properly. We have just discovered that the TCPIP install program overwrites this file with one tuned for TCPIP. Unfortunately, it changes the VME setups which were already there. The correct VME settings are documented in the user manual (GFK-1055), and this IPI. As a precaution, the following steps are recommended: Before installing TCPIP, copy the file C:\WINDOWS\GEF_CFG.INI to the C:\BACKUP directory. You should then modify the files C:\PNPUTILS\BKUP1ST.BAT and C:\PNPUTILS\BACKUP.BAT to include the following line: `COPY C:\WINDOWS\GEF_CFG.INI C:\BACKUP\GEF_CFG.NEW` The BKUP1ST.BAT file and the BACKUP.BAT files should be used routinely to back up your hard disk. Other files, such as CONFIG.SYS and SYSTEM.INI, are already copied to C:\BACKUP*.NEW by the batch files, so implementing the above procedure will add GEF_CFG.INI to that list. So, in the event of a major disaster after a new install (in this case TCPIP), you will have the original file as C:\BACKUP\GEF_CFG.INI and will also have a fairly recent C:\BACKUP\GEF_INI.NEW.

42. E-Net LED	The E-net LED on the VPC blinks only when transmitting data packets. It does not blink when receiving data packets.
43. Logicmaster 90 over Ethernet	GE Fanuc is still in the process of testing Logicmaster 90 over Ethernet, and does not formally support it at this time. Preliminary indications are that configurations which support LM90 over MMS/Ethernet and over TCP/IP Ethernet will both work under limited conditions. Specifically, operation from DOS (not from Windows) appears to be reliable. Also, it does not appear to be possible to run LM90 over Ethernet in a DOS box from Windows. As more information is available, it will be placed on the GE Fanuc bulletin board.
44. GE Fanuc Bulletin Board	In the PLC section of the GE Fanuc bulletin board, there is a "Plug & Play" section. The phone number is 804-978-5458 (up to 19200 baud, 8 bits, no parity). Files on this bulletin board are provided by GE Fanuc "as-is" and no warranties apply.
45. Cable, VPC to CPU	The RS-485 serial cable, included for connecting from the VPC to the 90-70 CPU, has the following internal connections: **9 pin female D (to VPC)** / **15 pin male D (to 90-70 CPU)** 2 — 12 3 — 10 4 — 11 6 — 13 6 15 8 14

46. InterLink Cable	It should be noted that the included InterLink cable is *not* the same as a parallel printer cable although they may appear to be identical. In revision A units, the InterLink cable had no identification labels. On revision B units, the cable has a label identifying it as an InterLink Cable. Customers with revision A InterLink cables should attach a label to prevent confusion.
	Pinouts for the Parallel InterLink cable are as shown below:
	1 ———————— 1 2 ———————— 15 3 ———————— 13 4 ———————— 12 5 ———————— 10 6 ———————— 11 10 ———————— 5 11 ———————— 6 12 ———————— 4 13 ———————— 3 15 ———————— 2 25 ———————— 25 H ———————— H (Housing)
	Documentation for a serial InterLink cable is described in the DOS on-line help under **interlnk**.
47. InterLink/Hardware Key **CAUTION**	**CAUTION** **Do not use InterLink on the parallel port without first disconnecting the CIMPLICITY InTouch hardware key (with power off), or damage to the key will result.** If you need a permanent hookup for both InterLink and CIMPLICITY purposes, leave the hardware key attached to the parallel port, but use a serial InterLink cable (documentation is in the on-line DOS help text under **interlnk**).
48. CIMPLICITY InTouch restrictions	In the configuration menus for the GE Host Communication Server, several of the configuration settings are currently disabled. • The "Configure/ComPort Settings" selection is disabled. This selection is only applicable to serial interfaces. Since the only protocol currently implemented in the server is VME, this setting is not applicable. • In the "Configure/Topic Definition" dialog screen, the "Com Port" setting is disabled. In the "Protocol Selection" box, the "TCP/IP-Ethernet" and "SNP-Serial" settings are disabled.

49. Configuration Mismatches	If the VPC is misconfigured using Logicmaster 90, several different symptoms can occur, although the VPC may appear to be communicating with the 90-70 CPU. Refer to the user manual for details.
50. VPC Fault Contact in the 90-70 CPU	The fault contact read by the 90-70 CPU into the fault tables for the VPC is "undefined", and should not be used.
51. Application timeouts	The Plug & Play VPC is normally set up to communicate over the VME backplane to the 90-70 CPU. If the CPU gets tied up with other activities, such as a Logicmaster 90 download from an external computer, or a redundant Genius bus switch, the 90-70 CPU may temporarily not respond to requests generated by the VPC. After a maximum of 8 seconds, the CPU will send the VPC application a message saying that it is busy. Depending on the application running in the Plug & Play PC, this message may or may not have an effect on the application.
52. Data Coherency during CPU "Constant Sweep" mode	The 90-70 CPU has a "constant sweep" mode of operation. While this mode is active, data Transmissions To And From cards in the backplane, including a Plug & Play PC, may be interrupted at unexpected times. This may result in "noncoherent data" either in the Plug & Play PC or in the 90-70 CPU. If coherent data is required, constant sweep mode should not be used.
53. Control Alt Delete	If you hit **Control Alt Delete** while the VPC is already doing its power up memory test, the VPC may incorrectly report the amount of memory available during the next power up. Do not hit **Control Alt Delete** until the DOS prompt has appeared. Other more significant bugs may also occur. Refer to the section "Recovery from the Starting MS-DOS..... hangup problem."
54. Hot insertion of hard disks	.The hard disk in SOCKET A (Drive G:) can be inserted and removed with power on. However, it is necessary that you wait at least 5 seconds before removing a drive after plugging it in. You must also wait at least 5 seconds after removing a drive before plugging it back in. Detection of newly inserted drives may not be reliable depending on what else the VPC is doing. Specifically, if the VMEDDE driver is loaded, then hot insertion definitely will not work. To ensure the disk is read, power down, plug in the disk, and power back up again. Or alternatively, plug in the new disk, and quickly toggle the RESET switch.
55. Is the device in Socket A a hard disk or a floppy disk?	Because of the PCMCIA drivers which are used to access the Socket A port on the Plug & Play PC, a hard drive will be misidentified as a floppy drive by some programs such as the Microsoft Virus checker. This does not affect the proper use of these programs. Since the hard drive is a removable medium, it is treated as a floppy by some of these programs.

UMBDDE Driver Help Text

Note: The help text from the UMBDDE driver is reproduced here for your convenience.

UMBDDE

The DDE Server for the GE Fanuc Series 90-70 PLC

UMBDDE is a standard DDE server developed especially for applications using the GE Fanuc Series 90-70 PLC. The following options are available in the two pull down menus to customize the server to meet your DDE requirements:

In the Configure menu:

IO Configuration

DDE Server Operational Parameters

Debug Messages

In the Help menu:

Help Index

Using Help

About

IO Configuration

Selecting this option enables you to configure the following parameters:

Topic Name: This is the DDE topic name for used for DDE conversation.

UMB Segment: This option selects the upper memory block (UMB) segment address to use for data transfer. The allowable choices are C0000, D0000, or E0000 hex.

Analog or Register: This option configures the offsets and block size within the UMB space for Analog (AI and AQ) and Register (R) values. Register values map to AI and AQ values in the following manner: Writes to a R value will map to the corresponding AI offset. Reads from an R value will map to the corresponding AQ offset. R values are unsigned 16-bit integers just like AI and AQ values unless overridden by a type suffix. The following type suffixes are available:

Real Numbers

Signed Numbers

BCD Numbers

Discrete Points

Long Integer Numbers

32-bit Floating Point Numbers

ASCII String Items

Discrete: This option configures the offsets and block size within the UMB space for Discrete (I and Q) values.

Going from left to right, the 3 boxes per line stand for the following:

Box 1 is the name of the DDE label mapped to the offset (Box 2). This value must be a positive, non-zero number.

Box 2 is the UMB address for the data field. This is the same as saying the byte offset from the UMB Segment listed above.

Box 3 is the number of individually accessible data units.

Use caution when altering the OFFSET and WORDS (POINTS) parameters. Careless setting of these values can result in data overlapping and corruption, boundary overflow, and inefficient usage of available space.

Update Interval: This is the time in milliseconds between data refreshes by the server.

When all IO Configurations are complete, select the OK button to save these settings. Select the CANCEL button to close the window without making and parameter changes. Selecting the DEFAULT button sets all the IO settings to their factory default settings.

DDE Server Operational Parameters

Selecting this menu option will allow you to configure the following settings:

Protocol Timer Tick: This is the timer tick value in milliseconds for the DDE protocol used by this server.

Internal DDE Timer Tick: This is the internal DDE timer tick value in milliseconds.

DDE Block Size: This is the maximum size in bytes of a single DDE block transfer.

When all DDE server operational parameters are set, select the OK button to save these settings. Select the CANCEL button to close the window without making and parameter changes. Selecting the DEFAULT button sets all the DDE server operational parameters to their factory default settings.

Debug Messages

Choosing this option will select or deselect the debug messages. When this option is selected (checked), debug messages are sent to WWlogger. WWlogger.exe is a error / message logging program that compliments WonderWare InTouch software. Deselecting (unchecking) this option disables all debug messages.

Help Index

Selecting this option will open the on-line help you are reading now.

Using Help

Selecting this option will open Windows "How to Use Help" on-line help.

About

Selecting this option will display release information about this application.

Real Numbers

Registers are normally assumed to be integer variables. The user can cause the Server to convert register values to floating point by appending an "R" to the register name. For example:

R950 R

This will cause the Server to convert the 16-bit register value to floating point before sending it to the DDE Client **(CIMPLICITY InTouch.)** Don't use this notation with **CIMPLICITY InTouch** unless the **CIMPLICITY InTouch** tagname definition specifies "DDE Real."

Signed Numbers

A register can be interpreted as a signed 16-bit value with a range of -32,768 to 32,767 by adding a blank space then **S** following item name. For example:

R100 S

BCD Numbers

A BCD (Binary Coded Decimal) register can be handled correctly by adding a blank space, then **(BCD)** following the item name. For example:

R4087 (BCD)

This will cause the DDE Server to convert the register contents from BCD to binary before sending it to the client application. It will convert values from binary to BCD before sending to the PLC.

Discrete Points

Individual bits in registers can be used as discrete tagnames in **CIMPLICITY InTouch** by entering the item name in the following format:

R*nn:b*

This will cause the DDE Server to extract bit *b* (0-15) of the register *nn*. The value will be returned to **CIMPLICITY InTouch** as a discrete.

Examples:

R1:0	–Least significant bit of R1.
R1:15	–Most significant bit of R1.
R10:3	–Bit 3 of R10.

Long Integer Numbers

A pair of registers can be interpreted as a long integer (or double precision integer) by adding a blank space, then an **L** after the item name. For example:

R601 L

This notation causes the DDE Server to treat R601 and R602 as a signed 32-bit number with R601 being the least significant half.

32-Bit Floating Point Numbers

A pair of registers can be interpreted as a floating point number by adding a blank space then an **F** to the item name for lower numbered register of the pair. For example:

R1001 F

This notation causes the DDE Server to treat R1001 and R1002 as an IEEE 32-bit floating point number.

ASCII String Items

A series of consecutive registers can be treated as an ASCII character string by adding a blank space, then an **M** after the item name. For example:

R101–R150 M

This item name indicates that registers R101 through R150 contain a string of 100 ASCII characters. Each register contains 2 characters with the low order byte first. A zero byte in any register will be treated as the end of string.